POLICY RESEARCH WORKING PAPER 2322

Self-Targeted Subsidies

The Distributional Impact of the Egyptian Food Subsidy System

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By gradually reducing the number of subsidized foods, and by focusing subsidies on foods consumed more by the poor than by the rich — like coarse baladi bread — Egyptian policymakers have found a way to self-target food subsidies to the urban poor. Yet because the rural poor do not consume as much baladi bread, this system is not as well-targeted to the rural poor.

The World Bank
Poverty Reduction and Economic Management Network
Poverty Division
April 2000

Summary findings

The Egyptian food subsidy system is an untargeted system that is essentially open to all Egyptians. For this reason, the budgetary costs of this system have been high and the ability of this system to improve the welfare status of the poor has been questioned.

Since the food riots of 1977, Egyptian policymakers have been reluctant to make large changes in their food subsidy system. Rather, their strategy has been to reduce the costs and coverage of this system gradually. For example, since 1980 policymakers have reduced the number of subsidized foods from 20 to just four.

Despite these cutbacks, Adams uses new 1997 household survey data to show that the Egyptian food subsidy system *is* self-targeted to the poor, because it subsidizes "inferior" goods. In urban Egypt, for instance, the main subsidized food — coarse baladi bread — is consumed more by the poor (the lowest quintile group of the population) than by the rich (the highest quintile). So subsidizing baladi bread is a good way of improving the welfare status of the urban poor. But in rural Egypt where the poor do not consume so much baladi bread, the poor receive less in income transfers than the rich.

In many countries, administrative targeting of food subsidies can do a better job of targeting the poor than self-targeting systems. In Jamaica, for example, poor people get food stamps at health clinics, so the Jamaican poor receive double the income transfers from food subsidies that the Egyptian poor receive. But starting a comparable system in Egypt would be costly both in financial and political terms, because many nonpoor households currently receiving food subsidies would have to be excluded.

For these reasons, it is likely that the government will continue to refine the present food subsidy system, perhaps by eliminating current subsidies on sugar or edible oil. Neither of these foods is an "inferior" good, so eliminating these subsidies will have only a minimal impact on the welfare status of the poor.

This paper — a product of the Poverty Division, Poverty Reduction and Economic Management Network — is part of a larger effort in the network to identify the impact of transfer programs on the urban and rural poor. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Moira Coleridge-Taylor, room MC4-554, telephone 202-473-3704, fax 202-522-3283, email address mcoleridgetaylor@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. The author may be contacted at radams@worldbank.org. April 2000. (42 pages)

1. Introduction

Food subsidy programs are under increasing criticism in many developing countries because of their large contributions to government budget deficits. According to critics, food subsidies pose both an unnecessary burden on the public budget and are economically inefficient because their benefits are often not received by the poor.[1] These critics argue that because of improper targeting, a large part of food subsidies is "leaked" to high-income people.

Proponents of food subsidies argue, however, that such programs are necessary to "guarantee" the supply of basic foods to the poor. Proponents claim that since the poor spend higher proportions of their income on food than do the rich, food subsidies are needed to protect the welfare and nutritional status of the economically disadvantaged.

How much do food subsidies affect the incomes and nutritional status of the poor? What proportion of food subsidies are leaked to non-needy groups, such as high-income consumers? What are the political issues involved in trying to reform food subsidy programs? This paper proposes to analyze these, and similar, issues within the context of Egypt.

Egypt represents an ideal country for examining such issues because it has had a large food subsidy program dating back to World War II. By 1980 this subsidy system had expanded to include almost 20 foods and to account for about 15 percent of total government expenditures. Since that time budgetary pressures have forced a considerable

"downsizing" of the food subsidy program. At present, the Egyptian subsidy system only includes four foods – coarse baladi bread,[2] coarse baladi wheat flour, edible oil and sugar – and accounts for less than 6 percent of total government expenditures. The coarse baladi bread is sold to consumers without quantity restrictions by private sector bakeries, the coarse wheat flour is sold by government warehouses, and edible oil and sugar are sold at fixed monthly quotas by private groceries.

In theory, subsidizing cheap, "calorie-dense" foods like coarse bread and coarse wheat flour should help protect the income and nutritional status of the poor in Egypt. In practice, however, since the Egyptian food subsidy system is a general, untargeted one that is virtually open to all Egyptians, the benefits of this system are in much dispute. For instance, while critics charge that the system is plagued by large amounts of leakage to non-needy groups, government policymakers are often reluctant to reform the system for fear of political unrest.

This paper extends an earlier study by the author in order to shed new light on the political and distributional impact of Egyptian food subsidies.[3] It is divided as follows. To provide a broader context, Section 2 presents an overview of the role of food subsidies in developing countries. Section 3 then reviews the history and operation of the food subsidy system in Egypt, paying particular attention to the 1977 food riots. Section 4 presents the details from a new, 1997 household budget survey in Egypt. This survey, which collected heretofore unavailable expenditure data on each type of subsidized food in Egypt, makes it possible to pinpoint the current distributional impact of food subsidies. Sections 5 and 6 use these new survey data to analyze the impact of each subsidized food

on different income groups in urban and rural areas. Section 7 presents some possible options for reforming Egyptian food subsidies, and section 8 concludes.

2. Role of Food Subsidies in Developing Countries

In the developing world food subsidy programs are used to sell and/or make available certain food items to consumers at below-market prices. These programs can be used to pursue a variety of objectives. In some countries food subsidies are designed as a form of partial wage compensation to public sector employees, including military personnel. In other countries food subsidies are used to try to improve the nutritional level of certain "at risk" groups, like pregnant mothers or school children. Finally, in some countries food subsidies are used to raise the income and nutritional status of larger – and perhaps more ill-defined groups – such as the poor.[4]

A key to the effectiveness of all these programs is the degree to which they are able to deliver subsidized food to their intended target group (i.e. pregnant mothers, the poor, etc). Indeed, the whole notion of targeting requires some sort of mechanism by which the general population can be "screened" in order to determine which individuals should receive food subsidies, and which individuals should not.

In most general terms, the screening of individuals can occur in one of two ways: either through administrative targeting or through self-targeting. The first alternative – administrative targeting – typically uses some government agency or bureaucracy to select the beneficiaries of food subsidies. For example, government agencies sometimes select beneficiaries on the basis of income. However, in many developing countries it is often quite difficult to screen individuals on this basis because accurate income data are

unavailable for those households which are working in agriculture or the informal sector. For this reason, other indicators which correlate with income – such as area of residence – are sometimes used to select beneficiaries. Such geographic targeting has the advantage of requiring relatively little administration, but it is often not well-designed for reaching target populations. For example, a food subsidy program working in one area of the country will never be able to reach pregnant women or the poor in another region of the country.

Self-targeting represents a second way of selecting the beneficiaries for food subsidy programs. Self-targeting occurs when food subsidies are available to all, but the program is designed so that only the targeted population elects to participate. Self-targeting works best when the targeted population – for example, the poor – consume different food items than the general population. For instance, in Bangladesh a subsidy on wheat can be self-targeted to the poor, since the poor tend to consume more wheat than the non-poor, who prefer rice.[5]

Since the Egyptian food subsidy program uses self-targeting – rather than administrative means – to select beneficiaries, more needs to be said about the principle of self-targeting.

Food subsidies can be considered to be self-targeted when the subsidized item is an inferior good;[6] that is, the food is consumed more in both absolute and relative terms by the poor than by the non-poor. Practically speaking, however, it is difficult to find food items which are consumed more in <u>both</u> absolute and relative terms by the poor than by the rich. In other words, while the poor may spend relatively more of their budgets on certain foods than the rich, since the rich spend more in absolute terms on food, it is

difficult to find specific food items on which the poor spend more in absolute terms than the rich. Other than the wheat versus rice case in Bangladesh (and other Asian countries), the most common exception to this "rule" comes when different qualities of the same food commodity can be found. For instance, a recent study in Tunisia found that while the rich spend more in absolute and relative terms on subsidized bread, the poor spend more in absolute and relative terms on subsidized coarse bread.[7] In other words, if the goal is to self-target food subsidies to the poor, then the choice of commodity to subsidize is very important.

3 (a). History of the Food Subsidy System in Egypt

The current food subsidy system in Egypt has its origins in World War II. In 1941 the Egyptian government introduced food rationing in order to provide certain necessities – edible oil, sugar, tea and kerosene – to consumers at relatively low prices. This rationing program was not designed to provide low-priced food to the poor.

During the 1950s and 1960s the total cost of this food subsidy system remained small. During the 1970s, however, the system was extended to include additional foods, such as beans, lentils, frozen fish, frozen meat and chicken.[8] By 1980 the subsidy system included almost 20 foods, most of which were available on a monthly quota basis to all Egyptians who had ration cards. Since the overwhelming majority of the population had ration cards, subsidized foods were essentially available to all Egyptians.

As a result of these changes, the cost of Egyptian food subsidies ballooned. By 1975 food subsidies accounted for 16.9 percent of total government expenditures (Table 1).

It should, however, be recognized that food subsidies have never accounted for the sum total of subsidies in Egypt. Since the early 1970s food subsidies in Egypt have represented part of a much larger consumer welfare program that subsidizes water, electricity, transportation and oil. This larger consumer welfare program, which is not targeted to the poor, includes both explicit subsidies – for items like food – and implicit subsidies – for items like water and electricity.

In Egypt implicit subsidies are not listed in the official government budget and are never included in the figures that are listed for subsidies.[9] This makes it very difficult to calculate the size of these subsidies. For example, in Egypt implicit subsidies on water and electricity represent the losses incurred by the public sector companies that sell these services to the public. In other words, when these companies sell water and electricity at less than the cost of production, these losses are listed on the accounts of the public sector companies but not on the government budget.

Table 2 represents an attempt to use incomplete data to estimate the total costs of explicit and implicit subsidies in Egypt. Even with fragmentary data, the table shows that the total value of implicit subsidies – on non-food items like water and electricity – is quite high. For example, in the year 1993/94, the total value of implicit subsidies (LE 3,950 million) is much higher than that for food subsidies (LE 2,486 million). Moreover, it should be noted that the estimates for implicit subsidies on water and electricity in Table 2 cover only those subsidies given to urban – and not rural – consumers. Thus, the actual value of implicit subsidies on water and electricity is probably three to four times higher than reported.

Food subsidies, however, have always tended to attract more attention than other types of subsidies in Egypt. The reason for this is that food subsidies have always been explicit and listed as a line item in the government budget because much of the subsidized food – that is wheat and wheat flour – has been imported. For example, during the 1980s the average annual cost of wheat and wheat flour imports into Egypt was US $1,188 million. Because of recent increases in Egyptian wheat production, in the 1990s the average annual cost of such imports has fallen to US $800 million. Nevertheless, Egypt still remains the world's third largest wheat and wheat flour importer, after China and Russia.

Partly as a result of its wheat imports, Egypt's trade balance and current account have been in deficit in most years. To meet this situation, Egypt has been forced to borrow from abroad. Between 1975 and 1993 Egypt's total external debt increased more than eight-fold: from US $4,828 to $40,626 million.

As Egypt's external debts rose, it was forced to try to reschedule debt payments by entering into negotiations with the International Monetary Fund (IMF). Unlike Latin American debtors, Egypt has not borrowed heavily from commercial banks. Most of its external debt is on concessionary terms, consisting of long-term loans from governments and international institutions. Nevertheless, in order to satisfy creditors, Egypt reached stand-by agreements with the IMF in 1977, 1987 and 1991.[10] Each of these agreements called upon the Egyptian government to reduce public expenditures by cutting back on subsidies, salaries to government and public sector workers, and investment in public sector firms.

3 (b). External Debt, Food Subsidies and the 1977 Riots

In 1977, during the months before Egypt's first stand-by agreement with the IMF, Egypt's total external debt stood at over US $5.7 billion (42 percent of gross national product). Some of this debt came from rolling over the short-term loans that had been used to finance food imports prior to 1974 when food aid increased. Not only was Egypt's foreign indebtedness high, but in the mid-1970s traditional creditors were balking at giving further loans until the government took immediate steps to reduce public expenditures. For instance, in late 1976 the Gulf Organization for the Development of Egypt, a consortium of Arab countries, refused to grant a loan of US $1.0 billion to fund Egypt's balance-of-payments deficit.

To meet this situation, Egyptian policymakers decided to reduce expenditures by cutting subsidies. According to Dr. Hamed Latif el-Sayeh, Minister of Economy and Economic Cooperation:

> (In 1976) we had a government budget deficit of over US $2.0 billion. When we came into the (Egyptian) Cabinet, we decided that this must be reduced. There are four major items in the budget: military, investment, subsidies and debt service. Should we cut back on our military? You can't do that. Investment? That's growth and without growth Egypt cannot live. . . . Debt service? We have more than $2.5 billion in medium- and long-range debt. You can't touch that. . . . (So the only thing left) is subsidies. A few years ago we started with bread subsidies. Then we went into all kinds of things. The subsidies went from US $175 million four years ago to US $1.7 billion. This is why we moved immediately, and without thinking politically, I guess, to reduce subsidies. The problem was it was a bad strategy. We are not trained politicians. We did not anticipate any trouble. We told the International Monetary Fund there would be no trouble (reducing subsidies).[11]

Based on this thinking, the Egyptian cabinet on January 19, 1977 announced immediate price increases for a number of subsidized foods: fino bread (72 percent extraction),[12] refined flour, rationed sugar, rationed rice and tea. Prices for other

subsidized foods, including coarse baladi bread (82 percent extraction), rationed sugar and edible oil were not affected by this announcement. However, the announcement also raised prices for some subsidized non-food commodities: butagas, gasoline and cigarettes.

The popular response to these price increases was immediate. On January 20, 1977 rioting erupted throughout Egypt. Police precincts were besieged, shops and nightclubs were looted, and in Cairo alone 77 people were killed.

As a result of these disturbances, all the price increases were rescinded. Within a week, the International Monetary Fund, anxious to restore stability to Egypt, announced a US $140 million loan to Egypt.

The events of January 1977 seared the consciousness of policymakers. Since that time no Egyptian policymaker has tried to eliminate food subsidies in one fell swoop. Instead, the strategy has been to reduce the cost of food subsidies gradually and without much fanfare. Three aspects of this strategy merit particular attention.

First, since 1977 the Egyptian government has slowly, but deliberately, reduced the number of subsidized foods. For instance, as mentioned above, in 1980 the subsidy system included almost 20 foods, including such high-income elasticity foods as frozen meat, eggs and chicken.[13] With the exception of subsidized bread, which was sold without quantity restrictions, most of these subsidized food items were available on a monthly quota basis to all Egyptians who held ration cards. Since over 90 percent of the Egyptian population had ration cards, subsidized foods were essentially available to everyone. However, once the memory of the 1977 food riots began to fade, the Egyptian government began to slowly, but steadily, eliminate foods from the subsidy system. For

instance, the subsidy on frozen meat was removed in 1990/91, the subsidies on fish and tea in 1991/92 and that on rice in 1992/93. By 1996/97 only four food items remained subsidized: coarse baladi bread, coarse baladi wheat flour, sugar and edible oil.

Second, since the events of January 1977 Egyptian policymakers have tried to reduce the number of people who held ration cards and were thus eligible for food subsidies. In 1981 and again in 1994 the Egyptian Ministry of Trade and Supply reduced the number of ration card holders by canceling the names of people who were either abroad or deceased. In 1989 the Ministry of Trade and Supply also stopped registering new-born children into the system. Despite these changes, the number of ration book holders declined only slightly, reaching 78 percent of the total Egyptian population in 1994.[14]

In another effort to reduce eligibility, in 1981 the Ministry of Trade and Supply divided all ration book holders into two categories: fully subsidized (green books) and partially subsidized (red books). People in high-income professions – such as investors, owners of shops or buildings or cars, and landowners with more than 10 feddans[15] -- were all assigned to the partially subsidized program. Despite these efforts, the number of participants in the partially subsidized group remained very small. For example, by 1994 less than 3 percent of the total Egyptian population belonged to the partially subsidized group.

Third, Egyptian policymakers have handled subsidy reductions on the most important food item – bread – with much care. Such a strategy makes good sense in a country where bread (and wheat flour) account for 42 percent of total daily calorie consumption in urban areas.[16]

There are three basic types of bread in Egypt: a coarse, brown loaf called baladi (82 percent extraction); a whiter loaf called shami (76 percent extraction); and finally a longer loaf resembling French bread called fino (72 percent extraction). After thirty years of no price increases for bread, the price for all three types of subsidized bread was increased from LE 0.01 to LE 0.02 a loaf in 1983/84. Again, in 1988/89 the prices for all these breads was increased from LE 0.02 to LE 0.05. Without any announcement, Egyptian decision makers also began decreasing the weight of subsidized bread: from 150 to 130 grams per loaf. At the same time, Egyptian policymakers began engaging in "quality differentiation" by allowing the free market to produce and sell larger, higher-quality loaves of unsubsidized shami and fino bread. The sale of these higher quality breads tended to attract the demand of wealthier households, while leaving the lower-quality, subsidized bread for purchase by the poor. Finally, in 1992 the government stopped subsidizing the highest quality bread – fino bread (72 percent extraction). And four years later, in July 1996 the government stopped subsidizing the sale of shami bread (76 percent extraction).

Egyptian policymakers achieved all of these bread price increases without any repetition of the 1977 riots. One important reason for this success lies in the fact that baladi bread – the main bread in Egypt[17] -- is still heavily subsidized. In 1996/97 baladi bread sold at LE 0.05 per loaf, while the actual average cost of such a loaf was LE 0.121. Given the size of this subsidy, it is no wonder that baladi bread and baladi wheat flour have come to dominate the costs of the food subsidy system, accounting for about 60 percent of the total cost of Egyptian food subsidies in recent years (Table 1).

4. New 1997 Household Budget Survey

In 1996 the author published a study analyzing the distributional impact of the Egyptian food subsidy system.[18] This study used expenditure data from the 1990/91 Household and Income Expenditure Survey (HIES), which was a large, nationally-representative survey conducted by the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS).[19] One of the main problems with this 1990/91 HIES survey was that it did not collect expenditure data on different kinds of subsidized and nonsubsidized foods. For example, the 1990/91 survey did not collect data on the level of expenditures on subsidized bread (like baladi bread) as opposed to nonsubsidized bread (like fino bread). This made it difficult to pinpoint the distributional effects of subsidized foods on different income groups in the Egyptian population.

To remedy this data deficiency, in 1997 the International Food Policy Research Institute (IFPRI), together with the Egyptian Ministry of Agriculture and the Egyptian Ministry of Trade and Supply, carried out a new household survey. This new survey – the Egypt Integrated Household Survey (EIHS) -- was designed to collect detailed expenditure data on all of the main subsidized and non-subsidized foods in Egypt. The survey was a single-round, nationally-representative survey that included about 2,500 urban and rural households from 20 different governorates. The sample frame used for selecting households was supplied by CAPMAS from its 1990/91 HIES survey.[20]

The balance of this paper uses data from the 1997 IFPRI survey to evaluate the distributional impact of Egyptian food subsidies. To do this, several key calculations are made. First, per capita total expenditure is calculated from the IFPRI survey data for each household.[21] The measure of total expenditure used is quite comprehensive, and includes:

total food expenses, total nonfood non-durable good expenses, estimated use value of durable goods and an actual or imputed rental value of housing.[22] Second, data from the IFPRI study are used to calculate weekly food expenditures by individual food – both subsidized and nonsubsidized – for each household.

This paper disaggregates the population of the 1997 IFPRI sample into quintile groups, which are based on population quintiles ranked by total per capita expenditures. Since an important part of this analysis focuses on the nutritional benefits received by different expenditure quintile groups, it should be noted that a potential bias arises when the same information on calorie availability (from food expenditures) is used to classify households by expenditure level (food plus nonfood expenditures). For example, households that randomly overestimate food expenditures will also overestimate calorie availability and will tend to be filtered towards the top expenditure quintile groups. As a result, the gap in calorie availability (calorie supply) between high and low expenditure quintile groups can be grossly overstated.[23]

To avoid such potential bias, this paper calculates a "fitted" total expenditure per capita variable for each household by: (1) regressing nonfood expenditures, household size, and dummy variables for five different geographic regions on food expenditure;[24] (2) calculating "fitted" food expenditures from the regression coefficients; and (3) adding "fitted" food expenditures to observed nonfood expenditures.[25] In the analysis fitted total expenditures were then used to classify the population by expenditure quintile, separately for urban and rural Egypt.[26]

Throughout the analysis the population belonging to the lowest expenditure quintile group are considered to be "poor," and those belonging to the highest quintile

group are considered to be "rich." Also, since the distributional impact of food subsidies is different in urban and rural Egypt, the analysis will be divided into urban and rural areas.

5. Distributional Impact of Egyptian Food Subsidies: Urban Areas

From a distributional standpoint, it is best if a general food subsidy program -- like the one in Egypt – can subsidize those foods which are consumed more in absolute and relative terms by the poor than by the rich. A general food subsidy program can be called self-targeted if it subsidizes inferior foods whose consumption declines with income because wealthier households prefer higher quality, nonsubsidized foods.

Table 3 suggests that in urban areas the Egyptian food subsidy system is self-targeted in the sense that the poor tend to participate more than the rich. In urban areas the poorest expenditure quintile group (20 percent of the population) spends 20.8 percent of its total expenditures on subsidized food, while the top quintile group (20 percent of the population) spends 16.8 percent of its expenditures on subsidized food. In absolute terms, the poorest quintile group spends about 1.2 times more on subsidized food than the top group.

The results in Table 3 are driven by those for baladi bread. Not only does the mean per capita level of expenditures on baladi bread decline sharply with income, but the difference in mean expenditures on baladi bread between the lowest and highest quintile groups is statistically significant. By contrast, expenditure levels for the other three subsidized foods show little variation across income group. All of this suggests that for urban areas, baladi bread has the characteristics of an inferior good. The other three

subsidized foods – baladi wheat flour, edible oil and sugar – are not inferior goods in urban Egypt.

While the results of Table 3 are suggestive, they do not "prove" that the Egyptian food subsidy system is self-targeted to the urban poor. Since the rate of subsidy usually varies by type of food, it is important to consider the actual income transfer going to different income groups from each subsidized food. The amount of income transfer from each subsidized food can be defined as the difference between what a household pays for that subsidized food, and what they would have to pay for that food in the "free market" in the absence of food subsidies.

Unfortunately, in Egypt it is not easy to establish the amount of income transfer going to consumers from different subsidized foods. The principal ministry in Egypt – the Ministry of Trade and Supply – keeps no detailed records on the rate of subsidy for subsidized foods. In the absence of any established "free market" prices for subsidized foods in Egypt, it is therefore necessary to calculate equivalent border prices for each subsidized item. This is a sensible approach, because much of the subsidized food in Egypt is imported.[27]

To calculate equivalent border prices, it is necessary to start with the CIF import prices for each subsidized food, and then add in estimated costs of handling, transportation, retailing and – in the case of baladi bread – milling and baking expenses. Unfortunately, this procedure does not include any of the costs for administering food subsidies in Egypt, because these administrative costs are unknown. However, since it can be assumed that administrative costs would be roughly equal for each of the four subsidized foods, omitting these costs probably just gives a slight downward bias to the

calculated rate of subsidy for each food. In any event, following the above procedures suggests that in 1996/97 the rate of subsidy (defined as the amount of income transfer divided by the "free market," nonsubsidized price) was: 59 percent for subsidized baladi bread, 47 percent for subsidized baladi wheat flour, 56 percent for edible oil and 62 percent for sugar.[28] Table 4 shows how these rates of subsidy have varied in recent years for the four foods, and Appendix Table 1 provides details on how the rate of subsidy was calculated for the most important subsidized food: baladi bread.

Using these estimated rates of subsidy, Table 5 shows the distribution of income transfers to urban consumers from each subsidized food. The results show that food subsidies are self-targeted to the poor in urban areas because income transfers – on the whole -- decline with income. In absolute terms, while the lowest quintile group receives LE 1.83 per capita per week from subsidized food, and the third quintile group receives LE 1.96, the top quintile group receives the smallest amount in the table: LE 1.60.

As in Table 3, these results are driven by the distribution of income transfers from one food: baladi bread. Not only does baladi bread account for 74 percent of the total income transfers to the poor from subsidized foods in Table 5, but the level of income transfers from baladi bread declines sharply with income group and is significantly different between the lowest and highest quintile groups. By contrast, the amount of income transfer from each of the other subsidized foods shows little variation with income.

In relative terms, the poor in urban areas are also gaining more from income transfers than the rich. According to Table 5, total income transfers from subsidized food

as a share of total expenditures decline monotonically with income: from 8.7 percent for the poor to 1.4 percent for the rich.

Table 6 shows the distribution of calorie availability from subsidized food in urban areas.[29] Of the four subsidized foods, baladi bread is by far the most important source of calories, providing 33 percent of total calorie availability for the lowest quintile group and 18 percent for the top quintile group. On the whole, the four subsidized foods represent a major part of the diet of the urban poor, accounting for almost 44 percent of total calorie supply for the lowest quintile group.

6. Distributional impact of Egyptian food subsidies: Rural areas

Table 7 shows the distribution of expenditures on subsidized food by quintile group for rural areas. At first glance, food subsidies in rural Egypt do not seem to be as well targeted to the poor as in urban Egypt. In rural areas the poorest quintile group spends 19.5 percent of its total expenditures on subsidized foods while the top quintile group spends a slightly larger share -- 21 percent. These results seem to be driven by those for baladi bread. While in rural areas the mean per capita level of expenditures on subsidized baladi bread increases slightly with income, in urban areas it falls sharply with income (see Table 3).

Baladi bread has a different distributional impact in rural as opposed to urban areas because the rural poor tend to buy subsidized baladi wheat flour rather than subsidized baladi bread.[30] The rural poor use this baladi flour to bake their own bread. As a result, Table 7 shows that the mean per capita level of expenditures on baladi wheat

flour declines steadily with income. This suggests that in rural Egypt baladi wheat flour – and not baladi bread – has the characteristics of an inferior good.

There are two possible reasons for this difference in bread consumption patterns between urban and rural areas. First, in the countryside, the poor may have less access to bakeries than their counterparts in urban areas. For example, in rural Egypt bakeries tend to be located in towns and larger villages, and thus poor people living outside of these areas have less access to subsidized baladi bread. Second, throughout Egypt bread-baking is a female task. In rural areas, because of the twin influences of social tradition and reduced employment opportunities for women, it is likely that women have more time to bake and prepare bread. In rural Upper Egypt, for example, women – even poor women – typically do not accept paid employment outside the home and so would have more time than their urban counterparts to use subsidized baladi wheat flour to bake their own bread.[31]

Table 8 shows that in terms of income transfers the food subsidy system in rural Egypt is also not as well targeted to the poor as that in urban Egypt. In absolute terms, while the lowest quintile group receives LE 1.62 per capita per week from subsidized foods, the top quintile group receives LE 1.86. In rural Egypt the only subsidized food that transfers more income to the poor rather than to the rich is baladi wheat flour. According to Table 8, the level of income transfers from subsidized baladi wheat flour falls from LE 0.64 per capita per week for the lowest income group to LE 0.46 for the highest income group. This difference in income transfers from subsidized baladi wheat flour between the lowest and highest quintile groups is statistically significant.

While in absolute terms the rural poor may not be gaining as much as the rural rich from subsidized food, Table 8 shows that when the data are expressed in relative terms the picture is more encouraging. In rural Egypt, total income transfers from subsidized food as a share of total expenditures are both higher than those in urban areas and these transfers decline monotonically with income. Since rural households are on average poorer than those in urban areas,[32] they spend a larger proportion of their incomes on food in general and subsidized food in particular. However, in both rural and urban areas, as incomes rise, the proportion spent on both food and subsidized food declines.

Table 9 shows the distribution of calorie availability from subsidized food in rural areas. Two items are important here. First, unlike urban areas, baladi bread is no longer the single most dominant source of calorie availability. Because rural people tend to bake their own bread, baladi bread and baladi wheat flour are both important sources of calories: each account for about 16 percent of total calorie availability for the lowest quintile group. Second, because the food subsidy system is not as well targeted in rural areas, Table 9 shows that rich actually receive more calories from subsidized food than do the poor. In absolute terms, the highest quintile receives 1,195 calories from subsidized food, as opposed to 1,089 calories for those in the lowest quintile group. The reason for this seems to be that – unlike urban areas – the rich in rural areas are deriving more calories from subsidized baladi bread than the poor.

7. Options for Reforming the Egyptian Food Subsidy System

It is possible to compare the distribution of income transfers from the Egyptian food subsidy program with those of other countries. Table 10 (a) does this by comparing various food subsidy programs which use self-targeting to reach the poor. In Egypt the lowest quintile group receives about the same proportion of total income transfers from subsidized food (19 to 20 percent) as do those in the lowest quintile group in self-targeted programs in Tunisia and Morocco.

However, food subsidy programs which use administrative targeting and/or means-testing can do an even better job of delivering food subsidy benefits to the poor. For example, Table 10 (b) shows that the Jamaican food subsidy program, which uses administrative targeting to distribute food stamps at health clinics, delivers 44 percent of total income transfers to the lowest quintile group. The Jamaican program does a better job at delivering income transfers to the poor for three reasons: (1) it uses a government agency to screen the poor from the nonpoor ; (2) it issues food stamps only to the poor; and (3) these food stamps are delivered at public health clinics, which rich households do not tend to visit.

Replacing a general, self-targeted food subsidy program like the one in Egypt with an administratively targeted, means-tested program like the one in Jamaica thus has the potential for improving the delivery of food subsidy benefits to the poor. However, such a strategy must consider two possible difficulties. First, to follow the Jamaican example it will be necessary to establish an efficient administrative system for separating poor from nonpoor households, and then ensuring that only the former receive subsidized food. Such an administrative system will have its own budgetary costs. Second, in the Egyptian

case nonpoor households which are now receiving food subsidies will need to be excluded from this new administrative program. Excluding such nonpoor households may be politically difficult. In some cases, narrowly focused, administratively targeted food subsidy programs -- like the food stamps program in Jamaica -- do not last long, because they lack the political support of the excluded middle class.

Because of the political and administrative costs associated with shifting to an administratively targeted food subsidy program, it is useful to consider several less radical methods of reforming the Egyptian food subsidy system. Each of these possible reforms seeks to reduce the fiscal costs of the present food subsidy system in Egypt.

In order to predict the distributional impact of these possible reforms, it is necessary to estimate a complete matrix of food demand parameters for poor and nonpoor income groups in urban and rural Egypt. This can be done by using a new "food characteristic demand system" proposed by Bouis[33] and applied to the Egyptian data set by Bouis and Ahmed.[34] This new system uses a hedonic demand system to calculate a complete demand matrix of own-price, cross-price and expenditure elasticities for food and nonfood goods under specific restrictive assumptions.

Expenditure elasticities generated by the food characteristic demand system for 15 foods are presented in Table 11. In this table expenditure elasticities are presented separately for the poor (lowest 40 percent of the population in the policy simulations) and for the nonpoor (top 60 percent of the population), and for urban and rural areas. In the table subsidized and non-subsidized sugar, and subsidized and non-subsidized oil, are treated as single, aggregate goods, because only a small percentage of households in urban and rural Egypt rely exclusively on purchases of these two subsidized goods.

However, purchases of subsidized baladi bread and subsidized baladi wheat flour are not restricted by quantity, and thus expenditure elasticities are estimated separately for these two goods.

In Table 11 the expenditure elasticities for subsidized baladi bread and subsidized baladi wheat flour are negative in most (but not all) cases, suggesting that these two foods are inferior goods. By contrast, the best quality bread – fino bread (72 percent extraction) – has the highest expenditure elasticity among cereals in both urban and rural Egypt.

Using the expenditure elasticities in Table 11,[35] it is possible to calculate the distributional effects of three types of reform in the Egyptian food subsidy system.

The first possible reform is to eliminate the current subsidy on edible oil. While the edible oil subsidy presently only accounts for about 15 percent of the cost of total food subsidies, the data suggest that edible oil accounts for less than 4 percent of total per capita calorie availability in urban and rural Egypt. Moreover, the mean per capita level expenditures on edible oil in both urban and rural Egypt is essentially flat across income groups, suggesting that this food is probably not an inferior good. Policy simulations based upon the food characteristic demand system suggest that eliminating the subsidy on oil would cause an 11 percent decline in the value of income transfers to the urban poor in Egypt, and a 14 percent decline in the value of such transfers to the rural poor.

The second possible reform is to eliminate the current subsidy on sugar. At present, the subsidy on sugar accounts for 18 percent of the cost of total food subsidies. Moreover, like oil, sugar accounts for a very small share -- about 3 percent -- of total per capita calorie availability in urban and rural Egypt. Policy simulations show that eliminating this subsidy would lead to an 11 percent decline in the value of income

transfers to the urban poor in Egypt, and a 19 percent decline in the value of such transfers for the rural poor. In other words, eliminating the subsidy on sugar would have just about the same impact on the poor as that of eliminating the subsidy on oil.

The third possible reform, doubling the price of a loaf of subsidized baladi bread from LE 0.05 to LE 0.10,[36] would have the most important economic and distributional effects on the poor in Egypt. On the one hand, simulations based upon the food characteristic demand system suggest that government costs on total food subsidies would decline by 47 percent. On the other hand, because consumption of baladi bread is so high for the poor in urban areas, a doubling of the price of subsidized baladi bread would lead to a 61 percent decline in the value of income transfers to the urban poor. As a result of this large decline, there would be a significant negative effect on urban incomes: simulations suggest that total nonfood expenditures in urban areas would fall by approximately 7 percent. In rural areas, the food consumption and income effects of such an increase in subsidized baladi bread prices would be smaller, because rural people consume less subsidized bread than their urban counterparts.

8. Conclusion

In the past, the ability of the Egyptian food subsidy system to target and improve the welfare and nutritional status of the poor in Egypt has been much-debated. This debate has taken place because the Egyptian food subsidy system is still a general, untargeted program that is essentially open to all Egyptians, poor and non-poor.

This paper has used new household survey data to show that the Egyptian food subsidy system is targeted in the sense of being self-targeted to the poor because it

subsidizes foods which have the characteristics of inferior goods. This finding is particularly true in urban Egypt. In urban areas the food subsidy system is dominated by one food – coarse baladi bread – which is consumed more in absolute and relative terms by the poor (lowest quintile group) than by the rich (highest quintile group). As a result of the choice of foods to be subsidized, in urban areas the poor receive more income transfers from food subsidies than the rich. In rural areas, however, the food subsidy system is not quite as well targeted to the poor. In rural Egypt baladi bread is not an inferior good; the only subsidized food which is consumed more in absolute terms by the poor in the countryside is baladi wheat flour. While income transfers from baladi wheat flour benefit the poor more than the rich, for the food subsidy system as a whole in rural Egypt, the poor receive slightly less in income transfers in absolute terms than the rich.

Experience with food subsidy systems in other countries suggests that subsidy programs which use administrative targeting can do an even better job of delivering benefits to the poor. For example, the food subsidy program in Jamaica, which uses administrative targeting to deliver food stamps to poor people at health clinics, delivers over twice the amount of income transfers to the lowest quintile group than the present program in Egypt (see Table 10 (b)).

However, in order to implement the Jamaican food subsidy program in Egypt it would be necessary to establish a new government agency for separating the poor (lowest quintile group) from the nonpoor, and then ensuring that only the former receive subsidized food. Creating such an administrative agency would have its own budgetary and – even more importantly – political costs. In particular, it would be politically

difficult to exclude the large number of nonpoor households which now receive some benefit from the Egyptian food subsidy system.

Ever since the food riots of 1977, Egyptian policymakers have been reluctant to make sudden and large-scale changes in the food subsidy system. Instead, the strategy has been to try to reduce the costs and coverage of this system gradually. For example, since 1980 policymakers have reduced the number of subsidized foods from 20 to just four, and have reduced the number of kinds of subsidized bread from 3 to just one. In the future, it seems likely that policymakers will continue on this same track, and efforts to reform the system are likely to focus on eliminating the present subsidies for either subsidized sugar or edible oil. Neither of these subsidized foods is an inferior good, and thus eliminating the subsidy on one or both foods will have only a minimal welfare and nutritional impact on the poor in Egypt.

Notes

[1]Throughout this paper, the poor are considered to be those people belonging to the lowest quintile group (lowest 20 percent) of the population.

[2] In Egypt coarse baladi bread is milled at an 82 percent extraction rate, which is the highest extraction rate for any bread in Egypt. In general, breads which are made from higher-extraction flour are darker in color, rougher in texture and coarser in taste. These characteristics come from the inclusion of more bran and fiber particles in the bread, which actually improve the nutritive quality of the commodity.

[3]Sonia Ali and Richard Adams, Jr, "The Egyptian Food Subsidy System: Operation and Effects on Income Distribution," World Development 24 (November 1996): 1777-1791.

[4]For reviews of the objectives of food subsidy programs in the developing world, see: Timothy Besley and Ravi Kanbur, "Food Subsidies and Poverty Alleviation," Economic Journal 98 (September 1988): 701-719; and Harold Alderman, "Food Subsidies and the Poor," in George Psacharopoulos (ed), Essays on Poverty, Equity and Growth (Elmsford, NY: Pergamon Press, 1991).

[5]Richard Adams, Jr., "The Political Economy of the Food Subsidy System in Bangladesh," Journal of Development Studies 35 (October 1998): 66-88, esp. 82.

[6] In technical terms, inferior goods are those that have a negative income elasticity. This means that as income increases, the expenditure on that good falls in absolute terms.

[7] Laura Tuck and Kathy Lindert, From Universal Food Subsidies to a Self-Targeted Program: A Case Study of Tunisian Reform, World Bank Discussion Paper 351 (Washington, D.C.: World Bank, 1996), p. 37-39.

[8]Abla Latif and Amina Kamel, Application of Targeting Options to Egypt: Background Study for the Egyptian Social Welfare Program (Cairo: Center for Economic and Financial Research Studies, 1993).

[9] According to Iliya Harik, "The Egyptian economy is invested with direct and indirect subsidies, and it is very difficult for anyone to determine their total cost. . . . (But) when all the various subsidies are added, (they) eat up most of the Treasury." Harik, Economic Policy Reform in Egypt

(Gainesville, FL: University Press of Florida, 1997), p. 89.

[10] The 1991 Persian Gulf crisis did much to reduce Egypt's external debt. In May 1991 a Paris Club agreement agreed to write off about US $28 billion of Egypt's civilian and military debt. This debt relief was linked to the successful Egyptian completion of a IMF package of economic reforms.

[11] Interview with Dr. Hamed Latif el-Sayeh, New York Times, February 26, 1977, p. 7.

[12] There are three basic types of bread produced in Egypt: a coarse brown loaf called baladi (82 percent extraction rate); a whiter loaf called shami (76 percent extraction rate); and a longer loaf resembling French bread, called fino (72 percent extraction). At present, the only type of bread which is subsidized in Egypt is the coarse, baladi bread.

[13] In 1980 the full list of subsidized food items included: bread (baladi, shami and fino), flour, sugar, rice, tea, edible oil, beans, lentils, macaroni, coffee, sesame, shortening, imported cheese, frozen meat, fish, eggs and chicken.

[14] Ali and Adams, (note (3) above), Table 2.

[15] 1 feddan equals 1.038 acres.

[16] Harold Alderman and Joachim von Braun, The Effects of the Egyptian Food Ration and Subsidy System on Income Distribution and Consumption, Research Report 45 (Washington, DC: International Food Policy Research Institute, 1984), Table 14.

[17] It has been estimated that 80 percent of the wheat flour consumed in Egypt comes from subsidized baladi wheat flour . See Adel Mostafa, "Leakage in the Food Subsidy System" (draft report prepared for Food Security Research Project in Egypt, Cairo, January 1997, p. 28).

[18] Ali and Adams, (note (3) above).

[19]The 1990/91 HIES Survey included 14,232 households; 8,352 urban and 5,880 rural households.

[20] For more details on the 1997 IFPRI Egypt Integrated Household Survey, see Guarav Datt, Dean Joliffe and Manohar Sharma, "A Profile of Poverty in Egypt: 1997" (final draft report, International Food Policy Research Institute, Washington, DC, March 31, 1998).

[21] In this paper, expenditures are used as a proxy for income. For this reason, the terms "expenditures"

and "incomes" will be used interchangeably.

[22] For more on the various components of total expenditure, see Datt, Joliffe and Sharma (note (20) above).

[23] On this point, see Howarth Bouis and Lawrence Haddad, "Are Estimates of Calorie-Income Elasticities Too High: A Recalibration of the Plausible Range," Journal of Development Economics 39 (December): 333-364.

[24] The five dummy variables for geographic regions include those for: (1) metropolitan (Cairo, Alexandria, Suez); (2) urban Lower Egypt; (3) rural Lower Egypt; (4) urban Upper Egypt; and (5) rural Upper Egypt.

[25] For more on this procedure, see Howarth Bouis and Akhter Ahmed, "The Egyptian Food Subsidy System: Impacts on the Poor and an Evaluation of Alternatives for Policy Reforms" (final draft report, International Food Policy Research Institute, Washington, DC, March 31, 1998).

[26] In most cases, the distributional impact of Egyptian food subsidies on different quintile groups is the same using either "fitted" or non-fitted expenditure values. However, using "fitted" expenditure values provides more reasonable estimates of the levels of calorie availability for the different expenditure quintile groups.

[27] In 1995/96 imports provided 83 percent of the wheat grain for subsidized baladi bread and subsidized baladi flour, and over 90 percent of the oil for subsidized edible oil. See Sonia Ali and Ali Abdel Rahman, "Subsidized Baladi Bread in Egypt" (draft report prepared for Food Security Research Project in Egypt, Cairo, January 1996, p. 5).

[28] According to these calculations, in 1996/97 the "free market" nonsubsidized price for each of the four subsidized foods was as follows: 0.121 LE per loaf for baladi bread, 1.24 LE per kilogram for baladi wheat flour, 3.0 LE per kilogram for edible oil and 1.00 LE per kilogram for sugar. Data on the way these "free market" prices were calculated are available from the author.

[29] Tables 6 and 9 are expressed in terms of calorie availability (calorie supply) rather than actual calorie intake. Even so, the figures for calorie availability (supply) in these tables may seem high when compared with international standards. However, two points should be noted. First, when measured by household budget surveys, calorie availability in Egypt is usually quite high. Second, because of problems relating

how to count food purchases and exchanges by non-family members within the household (such as servants and hired labor), household budget surveys may tend to overestimate the actual level of calorie availability. In this sense, it might be more accurate to measure calorie availability (and intake) by a 24-hour recall survey.

[30]According to Tables 3 and 7, mean per capita expenditures on baladi wheat flour for the lowest quintile group in rural areas are six times what they are for this group in urban areas (LE 0.64 vs. LE 0.10).

[31]For more on this point, see Richard Adams, Jr., Development and Social Change in Rural Egypt (Syracuse University Press, 1986)

[32]According to Tables 5 and 8, mean total per capita household expenditures per week (on all food and nonfood items) are about 77 percent higher in urban areas: 57.8 LE in urban areas versus 32.3 LE in rural areas.

[33]Howarth Bouis, "A Food Demand System Based on Demand for Characteristics: If There is Curvature in the Slutsky Matrix, What do the Curves Look Like and Why?," Journal of Development Economics 51 (December 1996), 239-266.

[34] Bouis and Ahmed (note (25) above).

[35]For a full list of the own-price and cross-price elasticities generated by the model, see Bouis and Ahmed (note (25) above).

[36] Since there are currently no one piaster (LE 0.01) coins in Egypt, it would be quite difficult to increase the price of subsidized baladi bread by anything less than five piaster (LE 0.05) increments.

Table 1. Total cost by commodity of Egypt's food subsidy system, 1970 to 1996-97

Year	Bread and wheat flour	Maize	Edible oils	Sugar	Other commodities*	Total Food subsidies**	Total food subsidies***	Food subsidies as percentage of total gov't. expenditure
			LE Million (Nominal Terms)				LE Million (Real Terms)	Percentage
1970/71	20.9	0.8	10.4	8.0	1.7	41.8		0.2
1972	15.1	0.4	15.8	6.0	4.6	41.9		0.7
1973	79.0	4.4	16.8	19.0	17.0	136.2		5.5
1974	216.0	16.5	55.3	68.9	36.5	393.2		16.5
1975	260.9	31.1	72.2	20.8	38.7	423.7		16.9
1976	171.6	23.1	43.2	6.1	37.4	281.4		9.8
1977	149.1	406.0	54.6	n.a.	n.a.	343.2		10.9
1978	222.8	53.8	137.4	n.a.	n.a.	452.4		11.9
1979	588.3	38.5	200.2	n.a.	n.a.	996.8		16.2
1980-81	511.0	63.7	125.4	97.8	296.4	1094.3	2918.1	16.9
1981-82	807.1	160.1	259.7	169.3	431.8	1828.0	4415.5	19.5
1982-83	758.0	199.1	201.5	133.7	414.7	1707.0	3586.1	14.3
1983-84	861.5	294.1	337.5	119.5	396.4	2009.0	3639.5	16.8
1984-85	614.7	264.0	395.3	134.3	1037.7	2446.0	3786.4	18.4
1985-86	448.7	310.3	331.5	195.7	695.8	1982.0	2707.7	12.3
1986-87	289.8	136.1	263.6	258.5	723.0	1671.0	1671.0	10.6
1987-88	235.6	8.7	204.5	341.8	550.4	1341.0	1248.6	6.8
1988-89	543.3	-	243.5	470.4	737.8	1995.0	1578.3	9.2
1989-90	615.4	-	245.2	643.8	242.6	1747.0	1139.6	7.1
1990-91	1255.0	-	368.0	600.0	177.0	2400.0	1162.0	7.4
1991-92	1057.0	-	629.0	698.0	98.0	2482.0	1158.2	5.0
1992-93	1308.0	-	542.3	600.4	(-0.7)	2450.0	1040.8	5.5
1993-94	1424.0	-	424.9	579.7	57.4	2486.0	918.7	5.3
1994-95	1486.0	-	433.0	573.0	-	2492.0	865.6	5.4
1995-96	1848.1		625.0	624.9		3098.0	1059.0	6.0
1996-97	2273.0		606.2	788.8		3668.0	1244.0	6.5

*Other commodities include rice, lentils, chicken, frozen fish and frozen meat.

**Total food subsidies include financial losses of food marketing companies.

***Total food subsidies in real terms calculated by deflating nominal costs by CAPMAS Consumer Price Index for urban areas (1986-87 = 100).

n.a. = Not available.

Sources: Food subsidy data:

1970-71 to 1980-81 from Harold Alderman, Joachim von Braun and Sakr A. Sakr, Egypt's Food Subsidy and Rationing System: A Description, Research Report 34 (Washington, DC: International Food Policy Research Institute, 1982), Table 2.

1981-82 to 1996-97 from unpublished data, Ministry of Planning, and Ministry of Trade and Supply.

Total government expenditure data:

1970-71 to 1979 from Alderman, von Braun and Sakr, op. cit.

1980-81 to 1991-92 from unpublished data, Central Agency for Public Mobilization and Statistics.

1992-93 to 1996-97 from unpublished data, Ministry of Trade and Supply.

Table 2. Estimated costs of Egypt's explicit and implicit subsidies, 1990/91 to 1995/96 (in LE millions) (nominal terms)

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
Explicit Subsidies						
Food	2,400	2,482	2,450	2,486	2,492	3,099
Transportation[1]	---	---	---	---	326	301
Total[2]	6,000	7,600	4,000	3,500	3,700	4,200
Implicit Subsidies						
Water[3]	---	700	800	950	---	---
Electricity[4]	---	3,100	3,200	3,000	---	---
Oil products	---	---	---	---	---	---
Total[5]	---	3,800	4,000	3,950	---	---

Notes and sources:

1/ Transportation subsidies are incomplete and are based only on subsidies to Cairo and Alexandria Transportation Authorities. Value of other transportation subsidies is unknown. All estimates by International Monetary Fund.

2/ Value of food and transportation subsidies does not sum to total explicit subsidies because of incomplete data. Total explicit subsidies estimated by International Monetary Fund.

3/ Water subsidies, based on operational and investment subsidies for piped water in Cairo and Alexandria, estimated by World Bank, Arab Republic of Egypt: Social Welfare Study (Strengthening the Social Safety Net) (Washington, DC: World Bank, 1995), p.17. Estimates do not include value of water subsidies to rural farmers.

4/ Electricity subsidies, measured as the difference between current yield and long-run marginal cost, estimated by World Bank, Arab Republic of Egypt: Social Welfare Study (Strengthening the Social Safety Net) (Washington, DC: World Bank, 1995), p.18.

5/ Total implicit subsidies calculated as sum of all implicit subsidies.

Table 3. Expenditures on subsidized food by expenditure quintile group in urban Egypt, 1997

Subsidized food	Mean per capita expenditures per week (in LE)[a] on subsidized food by: Lowest Quintile [1]	Second [2]	Third [3]	Fourth [4]	Highest Quintile [5]	Average
Baladi bread	0.96	0.94	0.95	0.86	0.73*	0.88
Baladi wheat flour	0.10	0.13	0.12	0.06	0.09	0.10
Edible oil	0.08	0.10	0.12	0.09	0.07	0.09
Sugar[b]	0.08	0.09	0.11	0.10	0.10	0.10
Total expenditures on subsidized food by quintile	1.22	1.26	1.30	1.11	0.99	1.17
Percent of total expenditures on subsidized food by quintile	20.75	21.43	22.11	18.88	16.83	100.00
Percent of total population in quintile	20.00	20.00	20.00	20.00	20.00	100.00

Source: IFPRI Egypt Integrated Household Survey, 1997.

Notes: N = 1,078. Urban population is divided into quintile groups on the basis of total per capita fitted expenditures.

[a] In 1997, 1 Egyptian pound (LE) = US$0.295. All expenditure figures are in nominal terms.

[b] Includes expenditures on fully and partially subsidized sugar.

* Difference between lowest and highest quintile groups is significant at the 0.05 level.

Table 4. Rates of subsidy for subsidized food in Egypt, 1991/92 to 1996/97

Subsidized food	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
			(in percent)			
Baladi bread (loaf)	55	52	51	55	63	59
Baladi wheat flour (100 kg)	40	36	34	40	53	47
Edible oil (0.5 kg)	50	48	51	50	61	56
Sugar (1kg)	59	58	56	53	64	62

Notes; Rate of subsidy=Amount of income transfer/"Free Market", nonsubsidized price

Subsidized baladi bread is sold by the loaf; subsidized baladi wheat flour is sold by 100 kilogram sacks; subsidized edible oil is sold on a ration basis at 0.5 kilograms per month; and subsidized sugar is sold on a ration basis at 1.0 kilograms per month.

Source: Calculated from unpublished data, Ministry of Trade and Supply

Table 5. Income transfers to urban consumers from subsidized food by expenditure quintile group, 1997

Subsidized food	Mean per capita income transfers from subsidized food received by: (in LE[a] per capita per week) Lowest Quintile [1]	Second [2]	Third [3]	Fourth [4]	Highest Quintile [5]	All
Baladi bread	1.36	1.33	1.35	1.22	1.04*	1.26
Baladi wheat flour	0.10	0.14	0.11	0.07	0.08	0.10
Edible oil	0.16	0.20	0.27	0.24	0.18	0.21
Sugar[b]	0.21	0.17	0.24	0.22	0.30	0.23
Total income transfers from subsidized food	1.83	1.85	1.96	1.75	1.60	1.79
Total income transfers from subsidized food as percent of total per capita expenditures	8.74	6.20	4.81	3.10	1.43	3.12
Mean total per capita expenditures per week (on all food and nonfood items)	20.94	29.78	40.78	56.19	112.00	57.38

Source: IFPRI Egypt Integrated Household Survey, 1997.

Notes: N = 1,078. Urban population is divided into quintile groups on the basis of total per capita fitted expenditures.

[a] In 1997, 1 Egyptian pound (LE) = US$0.295. All expenditure figures are in nominal terms.

[b] Includes expenditures on fully and partially subsidized sugar.

* Difference between lowest and highest quintile groups is significant at the 0.05 level.

Table 6. Subsidized food as a source of calorie availability by expenditure quintile group for urban Egypt, 1997

	Percent of total daily per capita calorie availability by per capita expenditure quintile					
Subsidized food	Lowest [1]	Second [2]	Third [3]	Fourth [4]	Highest [5]	All
Baladi bread	33.0	29.2	26.3	22.7	18.1	25.0
Baladi wheat flour	3.1	3.9	2.5	1.2	1.4	2.3
Edible oil	3.7	4.2	4.4	3.4	2.5	3.5
Sugar	3.6	3.2	3.2	2.8	2.6	3.0
Percent of total daily per capita calorie availability from subsidized food	43.5	40.4	36.4	30.0	24.6	33.8
Total daily per capita calorie availability	2,704	3,012	3,302	3,533	3,664	3,306

Source: IFPRI Egypt Integrated Household Survey, 1997.

Notes: N = 1,078. Urban population is divided into quintile groups on the basis of total per capita fitted expenditures.

Table 7. Expenditures on subsidized food by expenditure quintile group in rural Egypt, 1997

Subsidized food	Mean per capita expenditures (in LE)[a] on subsidized food per week by: Lowest Quintile [1]	Second [2]	Third [3]	Fourth [4]	Highest Quintile [5]	Average
Baladi bread	0.42	0.44	0.48	0.54	0.54	0.49
Baladi wheat flour	0.64	0.54	0.52	0.54	0.53	0.55
Edible oil	0.06	0.08	0.09	0.09	0.10	0.09
Sugar[b]	0.07	0.09	0.10	0.11	0.11	0.10
Total expenditures on subsidized food by quintile	1.19	1.15	1.19	1.28	1.28	1.23
Percent of total expenditures on subsidized food by quintile	19.54	18.88	19.54	21.02	21.02	100.00
Percent of total population in quintile	20.00	20.00	20.00	20.00	20.00	100.00

Source: IFPRI Egypt Integrated Household Survey, 1997.

Notes: N = 1,278. Rural population is divided into quintile groups on the basis of total per capita fitted expenditures.

[a] In 1997, 1 Egyptian pound (LE) = US$0.295. All expenditure figures are in nominal terms.

[b] Includes expenditures on fully and partially subsidized sugar.

Table 8. Income transfers to rural consumers from subsidized food by expenditure quintile group, 1997

Subsidized food	Mean per capita income transfers from subsidized food received by: (in LE[a] per capita per week) Lowest Quintile [1]	Second [2]	Third [3]	Fourth [4]	Highest Quintile [5]	All
Baladi bread	0.59	0.62	0.68	0.77	0.84*	0.70
Baladi wheat flour	0.64	0.57	0.45	0.65	0.46*	0.55
Edible oil	0.17	0.20	0.20	0.23	0.26	0.21
Sugar[b]	0.22	0.17	0.24	0.22	0.30	0.23
Total income transfers from subsidized food	1.62	1.57	1.58	1.87	1.86	1.70
Total income transfers from subsidized food as percent of total per capita expenditures	10.43	7.68	6.17	5.77	3.39	5.26
Mean total per capita expenditures per week (on all food and nonfood items)	15.51	20.47	25.60	32.39	54.85	32.29

Source: IFPRI Egypt Integrated Household Survey, 1997.

Notes: N = 1,274. Rural population is divided into quintile groups on the basis of total per capita fitted expenditures.

[a] In 1997, 1 Egyptian pound (LE) = US$0.295. All expenditure figures are in nominal terms.

[b] Includes expenditures on fully and partially subsidized sugar.

* Difference between lowest and highest quintile groups is significant at the 0.05 level.

Table 9. Subsidized food as a source of calorie availability by expenditure quintile group for rural Egypt, 1997

	Percent of total daily per capita calorie availability, by per capita expenditure quintile					
Subsidized food	Lowest [1]	Second [2]	Third [3]	Fourth [4]	Highest [5]	All
Baladi bread	15.6	13.5	13.2	14.6	13.3	13.9
Baladi wheat flour	16.4	13.0	11.5	11.2	9.8	12.0
Edible oil	2.7	2.6	2.8	3.0	2.7	2.8
Sugar	3.1	3.2	3.0	3.1	2.7	3.0
Percent of total daily per capita calorie availability from subsidized food	37.9	32.4	30.5	31.8	28.5	31.6
Total daily per capita calorie availability	2,874	3,058	3,543	3,653	4,194	3,555

Source: IFPRI Egypt Integrated Household Survey, 1997.

Notes: N = 1,274. Rural population is divided into quintile groups on the basis of total per capita fitted expenditures.

Table 10. An international comparison of the income transfers from Egyptian food subsidies with those of food subsidy programs in other countries

		Percent of Income Transfers Going to Quintile Group				
		Poor				Rich
Country	Program	1	2	3	4	5
(a) Self-targeted programs						
Egypt (1997) Urban	SELF-SELECTION: Baladi bread and wheat flour, edible oil, and sugar	20	21	22	19	18
Egypt (1997) Rural	SELF-SELECTION: Baladi bread and wheat flour, edible oil, and sugar	19	18	19	22	22
Tunisia (1993)	SELF-SELECTION: Food price subsidies, food quality differentiation	21	20	21	20	18
Morocco (1991)	SELF-SELECTION: Food price subsidies, high extraction rate flour	23	24	22	18	13
(b) Administratively targeted programs						
Jamaica	Food stamps at health clinic	44	31	18	5	2
Chile	Food supplement at health clinic	41	28	18	10	3
Peru	Food supplement by neighborhood	42	30	20	6	3

Source: Egypt figures are calculated from Table 5 and 8; all other data from Laura Tuck and Kathy Lindert, From Universal Food Subsidies to a Self-Targeted Program: A Case Study of Tunisian Reform, World Bank Discussion Paper 351 (Washington, DC: World Bank, 1996), Table 20.

Table 11. Expenditure elasticities for 15 subsidized and nonsubsidized foods in urban and rural Egypt, 1997

Food	Expenditure elasticities			
	Urban		Rural	
	Lower 40 percent of population	Upper 60 percent of population	Lower 40 percent of population	Upper 60 percent of population
Subsidized foods				
Baladi bread	-0.11	-0.25	-0.05	-0.16
Baladi wheat flour	-0.08	0.05	0.04	-0.09
Nonsubsidized foods				
Wheat	-0.01	-0.01	-0.02	-0.06
Fino bread	0.35	0.16	0.34	0.17
Rice	0.05	-0.02	-0.20	0.10
Other cereal	0.21	0.13	0.16	0.11
Oil	0.62	0.42	0.71	0.49
Sugar	0.55	0.45	0.63	0.48
Pulses	0.48	0.29	0.54	0.37
Vegetables	0.73	0.56	0.74	0.58
Fruits	0.73	0.56	0.73	0.58
Meat	0.86	0.63	0.93	0.68
Eggs, milk	0.77	0.57	0.83	0.60
Condiments	0.80	0.59	0.83	0.63
Beverages	0.90	0.66	0.96	0.72
Nonfoods				
Nonfoods	1.60	1.42	1.71	1.53

Source: Howarth Bouis and Akhter Ahmed, "The Egyptian Food Subsidy System: Impacts on the Poor and an Evaluation of Alternatives for Policy Reforms", (Washington, DC: International Food Policy Research Institute, 1998), Table 15.

Appendix Table 1. Calculation of rate of subsidy on subsidized baladi bread (82 percent extraction) in Egypt, 1996/97

	Cell references	1996/97
Procurement (wheat grain)		
Border CIF price (Egypt LE/ton)	(1)	694
Import charges (port charges, handling, etc.,)	(2)	20
Import procurement cost-price (Egypt LE/ton)	(3) = (1) + (2)	714
Domestic procurement price (Egypt LE/ton)	(4)	600
Collection, storage and transport (wheat grain)		
Import procurement price of grain (per ton)	(5) = (3)	714
Collection, storage and transport margin	(6)	20
Explicit subsidy at CS&T level	(7)	0
Grain sales price (per ton)	(8) = (5) + (6)	734
Milling (conversion from wheat grain to flour)		
Mill purchase price of grain (per ton of grain)	(9) = (8)	734
Mill purchase price in flour equivalent (per ton of flour)	(10) = (9)/CF	895
Milling margin (per ton of flour)	(11)	40
Explicit subsidy at milling level	(12)	0
Ex-mill sales price (per ton of flour)	(13) = (10) + (11)	935
Retail-bakeries (flour to bread)		
Subsidized sales price to bakeries (per ton of flour)	(14)	290
Retail margin at bakeries (including transport)	(15)	160
Subsidized sales price to consumers	(16) = (15) + (14)	450
Explicit subsidy at bakery (per ton of flour)	(17) = [(13) + (15)] - (16)	645

(Continued)

Appendix Table 1. Continued

	Cell references	1996/97
Policy Analysis - Consumers		
Subsidized purchase price by consumers (per ton of flour)	(18) = (16)	450
Income transfer to consumers (Egypt LE/ton)	(19) = (17)	645
Rate of subsidy to consumers (percent) (Income transfer to consumers divided by free market, non-subsidized price)	(20) = (19)/[(13) + (15)]	58.9

Notes: All figures in Egypt LE/ton, unless otherwise noted. In 1997 1 Egyptian LE = US $ 0.295.
CIF = Cost, insurance and freight
CS&T = Collection, storage and transport
CF = Conversion factor for wheat grain into flour; for subsidized baladi bread this ratio is 82 percent.

Sources: Border CIF price computed as sum of average export price for US No.2 Hard Red Winter Wheat and freight rate from US Gulf to Alexandria, Egypt (International Grains Council, World Grain Statistics 1996/97, London, England: Tables 1 and 42).

All other data from unpublished data, Ministry of Trade and Supply.

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